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NEW MEXICO
ENVIRONMENT DEPARTMENT

Surface Water Quality Bureau

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DAVE MARTIN
Secretary

BUTCH TONGATE
Acting Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

February 22, 2012

Mr. Lance Allgood
Gallup Joint Utilities Executive Director
P.O. Box 1270
Gallup, New Mexico 87305-1270

Re: Major Municipal, SIC 4952, NPDES Compliance Evaluation Inspection, Gallup WWTP, NM0020672, February 8, 2012

Dear Mr. Allgood,

Enclosed, please find a copy of the report for the referenced inspection that the New Mexico Environment Department (NMED) conducted at your facility on behalf of the U.S. Environmental Protection Agency (USEPA). This inspection report will be sent to the USEPA in Dallas for their review. These inspections are used by USEPA to determine compliance with the National Pollutant Discharge Elimination System (NPDES) permitting program in accordance with requirements of the Federal Clean Water Act.

Findings are based on the inspector's observances in regards to specific requirements of the NPDES permit. The Gallup WWTP received an overall evaluation rating of "2" on a scale of 1 to 5. The main problems were found in the area of Recordkeeping & Reporting, Operations & Maintenance, Self Monitoring, Flow Measurement, Laboratory and Effluent/Receiving Waters. Please refer to the Further Explanations section of the report for more detail.

You are encouraged to review the inspection report, required to correct any problems noted during the inspection, and to modify your operational and/or administrative procedures, as appropriate. Further, you are encouraged to notify in writing both USEPA (Diana McDonald, USEPA (6EN-WT), 1445 Ross Ave, Dallas, Texas, 75202) and NMED (at above address) regarding modifications and compliance schedules.

I wish to thank you for the cooperation extended to the NMED while at the Gallup Wastewater Treatment Plant. If you have any questions about this inspection report, please contact me at (505) 222-9587 or sarah.holcomb@state.nm.us.

Sincerely,
/s/ Sarah Holcomb
Sarah Holcomb
Environmental Scientist/Specialist
Surface Water Quality Bureau

Cc: Samuel Tates, USEPA (6EN-AS) by email
Carol Peters-Wagnon, USEPA (6EN-WM) by email
Marcia Gail Adams, USEPA (6EN-AS) by email
Diana McDonald, USEPA (6EN-WM) by email
Larry Giglio, USEPA (6EN-P) by email
Hannah Branning, USEPA (6EN-WC) by email
Sonia Hall, USEPA (6EN-WC) by email
NMED District 1 Albuquerque by email

Form Approved
OMB No. 2040-0003
Approval Expires 7-31-85

NPDES Compliance Inspection Report

Section A: National Data System Coding

Transaction Code	NPDES	yr/mo/day	Inspec. Type	Inspector	Fac Type
1 N 2 5 3	N M 0 0 2 0 6 7 2 11 12	1 2 0 2 0 8 17 18	C 19	S 20	1

Remarks: M A J O R M U N I C I P A L

Inspection Work Days	Facility Evaluation Rating	BI	QA	Reserved
67 69	70 2	71 N 72	N 73 74	75 80

Section B: Facility Data

Name and Location of Facility Inspected *(For industrial users discharging to POTW, also include POTW name and NPDES permit number)*
GALLUP WASTEWATER TREATMENT PLANT, MCKINLEY COUNTY: FROM WESTBOUND I-40 TAKE EXIT 16 AND MAKE A LEFT (HEADED EAST) ON W. HISTORIC HWY 66. TRAVEL ABOUT 0.5 MILES TO INDUSTRY RD (NEXT TO SUNRISE II SELF STORAGE). MAKE A LEFT ON INDUSTRY, TAKE BRIDGE OVER THE TRAIN TRACKS & MAKE A RIGHT ON SWEETWATER AND PROCEED THROUGH THE ONE LANE TUNNEL. TREATMENT PLANT IS STRAIGHT AHEAD.

Entry Time /Date
0930 hours / 02-08-2012

Permit Effective Date
10-1-2011

Exit Time/Date
1520 hours / 02-08-2012

Permit Expiration Date
9-30-2016

Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)
MR. DENNIS WING, WASTEWATER PROGRAM MANAGER (505) 726-2440 FAX (505) 726-2441
MR. ROBERT SEKIYA, PROJECT ASST. MANAGER (505) 726-7440
MS. ANNA PLESE, LAB TECHNICIAN (505) 726-2445

Other Facility Data

GPS:
N. 35° 31.062'
W. -108° 49.047'

SIC: 4952

Name, Address of Responsible Official/Title/Phone and Fax Number
MR. LANCE ALLGOOD, EXECUTIVE DIRECTOR
PO BOX 1270, GALLUP, NM 87305 (505) 863-1289

Contacted
Yes * No

Section C: Areas Evaluated During Inspection

(S = Satisfactory, M = Marginal, U = Unsatisfactory, N = Not Evaluated)

S	Permit	S	Flow Measurement	M	Operations & Maintenance	M	CSO/SSO
M	Records/Reports	M	Self-Monitoring Program	S	Sludge Handling/Disposal	N	Pollution Prevention
M	Facility Site Review	N	Compliance Schedules	N	Pretreatment	N	Multimedia
U	Effluent/Receiving Waters	M	Laboratory	N	Storm Water	N	Other:

Section D: Summary of Findings/Comments (Attach additional sheets if necessary)

1. **INSPECTOR ARRIVED AT THE FACILITY AT 0930 HOURS ON FEBRUARY 8, 2012. THE INSPECTOR CONDUCTED AN ENTRANCE INTERVIEW WITH MR. DENNIS WING AND MR. ROBERT SEKIYA, WHERE SHE PRESENTED CREDENTIALS AND DISCUSSED THE PURPOSE OF THE INSPECTION.**
2. **PLEASE SEE REPORT FOR FURTHER EXPLANATIONS.**
3. **AN EXIT INTERVIEW TO DISCUSS THE PRELIMINARY FINDINGS OF THE INSPECTION WAS CONDUCTED WITH MR. LANCE ALLGOOD, EXECUTIVE DIRECTOR GALLUP JOINT UTILITIES, MR. ERNIE THOMPSON AND MR. DENNIS WING ON FEBRUARY 8, 2012, AT THE GALLUP JOINT UTILITIES BUILDING.**

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Telephone/Fax	Date
Sarah Holcomb ***/s/ Sarah Holcomb***	**NMED/SWQB 505-222-9587**	**2-22-2012**
Signature of Management QA Reviewer	**Agency/Office/Phone and Fax Numbers**	**Date**

Richard Powell ***/s/ Richard Powell***	**NMED/SWQB 505-827-2798**	**2-22-2012**

EPA Form 3560-3 (Rev. 9-94) Previous editions are obsolete

SECTION A - PERMIT VERIFICATION

PERMIT SATISFACTORILY ADDRESSES OBSERVATIONS X S O M ¨ U ¨ NA (*FURTHER EXPLANATION ATTACHED NO*)
DETAILS:

1. CORRECT NAME AND MAILING ADDRESS OF PERMITTEE	X Y O N ¨ NA
2. NOTIFICATION GIVEN TO EPA/STATE OF NEW DIFFERENT OR INCREASED DISCHARGES	O Y ¨ N X NA
3. NUMBER AND LOCATION OF DISCHARGE POINTS AS DESCRIBED IN PERMIT	X Y ¨ N ¨ NA
4. ALL DISCHARGES ARE PERMITTED	X Y ¨ N ¨ NA

SECTION B - RECORDKEEPING AND REPORTING EVALUATION

RECORDS AND REPORTS MAINTAINED AS REQUIRED BY PERMIT. O S X M O U ¨ NA (*FURTHER EXPLANATION ATTACHED YES*)
DETAILS:

1. ANALYTICAL RESULTS CONSISTENT WITH DATA REPORTED ON DMRs.	O Y X N O NA
2. SAMPLING AND ANALYSES DATA ADEQUATE AND INCLUDE.	O S X M ¨ U O NA
a) DATES, TIME(S) AND LOCATION(S) OF SAMPLING	X Y ¨ N O NA
b) NAME OF INDIVIDUAL PERFORMING SAMPLING	X Y ¨ N O NA
c) ANALYTICAL METHODS AND TECHNIQUES.	X Y ¨ N O NA
d) RESULTS OF ANALYSES AND CALIBRATIONS.	O Y X N O NA
e) DATES AND TIMES OF ANALYSES.	X Y ¨ N O NA
f) NAME OF PERSON(S) PERFORMING ANALYSES.	X Y ¨ N O NA
3. LABORATORY EQUIPMENT CALIBRATION AND MAINTENANCE RECORDS ADEQUATE.	X S ¨ M ¨ U ¨ NA
4. PLANT RECORDS INCLUDE SCHEDULES, DATES OF EQUIPMENT MAINTENANCE AND REPAIR.	X S ¨ M ¨ U ¨ NA
5. EFFLUENT LOADINGS CALCULATED USING DAILY EFFLUENT FLOW AND DAILY ANALYTICAL DATA.	X Y O N O NA

SECTION C - OPERATIONS AND MAINTENANCE

TREATMENT FACILITY PROPERLY OPERATED AND MAINTAINED. O S X M ¨ U ¨ NA (*FURTHER EXPLANATION ATTACHED YES*)
DETAILS:

1. TREATMENT UNITS PROPERLY OPERATED.	X S ¨ M O U ¨ NA
2. TREATMENT UNITS PROPERLY MAINTAINED.	O S X M O U ¨ NA
3. STANDBY POWER OR OTHER EQUIVALENT PROVIDED.	X S ¨ M O U O NA
4. ADEQUATE ALARM SYSTEM FOR POWER OR EQUIPMENT FAILURES AVAILABLE.	X S ¨ M O U O NA
5. ALL NEEDED TREATMENT UNITS IN SERVICE	X S O M O U ¨ NA
6. ADEQUATE NUMBER OF QUALIFIED OPERATORS PROVIDED.	X S O M O U ¨ NA
7. SPARE PARTS AND SUPPLIES INVENTORY MAINTAINED.	X S O M ¨ U O NA
8. OPERATION AND MAINTENANCE MANUAL AVAILABLE.	X Y ¨ N ¨ NA
STANDARD OPERATING PROCEDURES AND SCHEDULES ESTABLISHED.	X Y O N ¨ NA
PROCEDURES FOR EMERGENCY TREATMENT CONTROL ESTABLISHED.	X Y O N ¨ NA

GALLUP WASTEWATER TREATMENT PLANT	PERMIT NO. NM0020672

SECTION C - OPERATIONS AND MAINTENANCE (CONT'D)

9. HAVE BYPASSES/OVERFLOWS OCCURRED AT THE PLANT OR IN THE COLLECTION SYSTEM IN THE LAST YEAR?	X Y O N ¨ NA
IF SO, HAS THE REGULATORY AGENCY BEEN NOTIFIED?	X Y ¨ N O NA
HAS CORRECTIVE ACTION BEEN TAKEN TO PREVENT ADDITIONAL BYPASSES/OVERFLOWS?	O Y X N O NA
10.HAVE ANY HYDRAULIC OVERLOADS OCCURRED AT THE TREATMENT PLANT?	¨ Y X N ¨ NA
IF SO, DID PERMIT VIOLATIONS OCCUR AS A RESULT?	¨ Y ¨ N X NA

SECTION D - SELF-MONITORING

PERMITTEE SELF-MONITORING MEETS PERMIT REQUIREMENTS. O S X M ¨ U ¨ NA *(FURTHER EXPLANATION ATTACHED YES).*
DETAILS:

1. SAMPLES TAKEN AT SITE(S) SPECIFIED IN PERMIT.	X Y ¨ N O NA
2. LOCATIONS ADEQUATE FOR REPRESENTATIVE SAMPLES.	X Y ¨ N O NA
3. FLOW PROPORTIONED SAMPLES OBTAINED WHEN REQUIRED BY PERMIT.	X Y O N O NA
4. SAMPLING AND ANALYSES COMPLETED ON PARAMETERS SPECIFIED IN PERMIT.	X Y ¨ N O NA
5. SAMPLING AND ANALYSES PERFORMED AT FREQUENCY SPECIFIED IN PERMIT.	X Y ¨ N O NA
6. SAMPLE COLLECTION PROCEDURES ADEQUATE	X Y ¨ N O NA
a) SAMPLES REFRIGERATED DURING COMPOSITING.	X Y ¨ N O NA
b) PROPER PRESERVATION TECHNIQUES USED.	X Y ¨ N O NA
c) CONTAINERS AND SAMPLE HOLDING TIMES CONFORM TO 40 CFR 136.3.	X Y ¨ N O NA
7. IF MONITORING AND ANALYSES ARE PERFORMED MORE OFTEN THAN REQUIRED BY PERMIT, ARE THE RESULTS REPORTED IN PERMITTEE'S SELF-MONITORING REPORT?	O Y X N O NA

SECTION E - FLOW MEASUREMENT

PERMITTEE FLOW MEASUREMENT MEETS PERMIT REQUIREMENTS. X S ¨ M O U O NA *(FURTHER EXPLANATION ATTACHED YES)*
DETAILS:

1. PRIMARY FLOW MEASUREMENT DEVICE PROPERLY INSTALLED AND MAINTAINED. TYPE OF DEVICE: **18 inch Parshall flume**	X Y ¨ N ¨ NA
2. FLOW MEASURED AT EACH OUTFALL AS REQUIRED.	X Y ¨ N O NA
3. SECONDARY INSTRUMENTS (TOTALIZERS, RECORDERS, ETC.) PROPERLY OPERATED AND MAINTAINED.	X Y ¨ N O NA
4. CALIBRATION FREQUENCY ADEQUATE.	X Y O N O NA
RECORDS MAINTAINED OF CALIBRATION PROCEDURES.	X Y O N O NA
CALIBRATION CHECKS DONE TO ASSURE CONTINUED COMPLIANCE.	O Y X N O NA
5. FLOW ENTERING DEVICE WELL DISTRIBUTED ACROSS THE CHANNEL AND FREE OF TURBULENCE.	X Y ¨ N O NA
6. HEAD MEASURED AT PROPER LOCATION.	X Y ¨ N O NA
7. FLOW MEASUREMENT EQUIPMENT ADEQUATE TO HANDLE EXPECTED RANGE OF FLOW RATES.	X Y ¨ N ¨ NA

SECTION F – LABORATORY

PERMITTEE LABORATORY PROCEDURES MEET PERMIT REQUIREMENTS. O S X M ¨ U O NA *(FURTHER EXPLANATION ATTACHED YES)*
DETAILS:

1. EPA APPROVED ANALYTICAL PROCEDURES USED *(40 CFR 136.3 FOR LIQUIDS, 503.8(b) FOR SLUDGES)*	O Y X N O NA

GALLUP WASTEWATER TREATMENT PLANT	PERMIT NO. NM0020672

SECTION F - LABORATORY (CONT'D)

2. IF ALTERNATIVE ANALYTICAL PROCEDURES ARE USED, PROPER APPROVAL HAS BEEN OBTAINED	¨ Y ¨ N X NA
3. SATISFACTORY CALIBRATION AND MAINTENANCE OF INSTRUMENTS AND EQUIPMENT.	X S O M ¨ U O NA
4. QUALITY CONTROL PROCEDURES ADEQUATE.	X S ¨ M ¨ U O NA
5. DUPLICATE SAMPLES ARE ANALYZED. 100 % OF THE TIME.	X Y ¨ N O NA
6. SPIKED SAMPLES ARE ANALYZED. 100 % OF THE TIME. (FOR METALS)	X Y ¨ N O NA
7. COMMERCIAL LABORATORY USED.	X Y ¨ N ¨ NA

LAB NAME ENERGY LABORATORIES

LAB ADDRESS 1120 SOUTH 27TH STREET, PO BOX 30916, BILLINGS, MT 59107-0916

PARAMETERS PERFORMED BOD5, TSS, COPPER, TDS

SECTION G - EFFLUENT/RECEIVING WATERS OBSERVATIONS. O S ¨ M X U ¨ NA *(FURTHER EXPLANATION ATTACHED YES).*

OUTFALL NO.	OIL SHEEN	GREASE	TURBIDITY	VISIBLE FOAM	FLOAT SOL.	COLOR	OTHER
001	NONE	NONE	NONE	YES	NONE	CLEAR	

RECEIVING WATER OBSERVATIONS FOAM WAS BEING DISCHARGED FROM THE OUTFALL AND WAS PERSISTENT TO ABOUT HALF A MILE DOWNSTREAM.

SECTION H - SLUDGE DISPOSAL

SLUDGE DISPOSAL MEETS PERMIT REQUIREMENTS. x S ☐M ☐U o NA (FURTHER EXPLANATION ATTACHED NO).
DETAILS:

1. SLUDGE MANAGEMENT ADEQUATE TO MAINTAIN EFFLUENT QUALITY.	x S ☐M ☐U ☐ NA
2. SLUDGE RECORDS MAINTAINED AS REQUIRED BY 40 CFR 503.	x S ☐M ☐U o NA

3. FOR LAND APPLIED SLUDGE, TYPE OF LAND APPLIED TO: INJECTION SITE ADJACENT TO PLANT (e.g., FOREST, AGRICULTURAL, PUBLIC CONTACT SITE)

SECTION I - SAMPLING INSPECTION PROCEDURES (FURTHER EXPLANATION ATTACHED NO).

1. SAMPLES OBTAINED THIS INSPECTION.	☐Y ☐N x NA
2. TYPE OF SAMPLE OBTAINED GRAB COMPOSITE SAMPLE METHOD FREQUENCY	
3. SAMPLES PRESERVED.	☐Y ☐N ☐NA
4. FLOW PROPORTIONED SAMPLES OBTAINED.	☐Y ☐N ☐NA
5. SAMPLE OBTAINED FROM FACILITY'S SAMPLING DEVICE.	☐Y ☐N ☐NA
6. SAMPLE REPRESENTATIVE OF VOLUME AND MATURE OF DISCHARGE.	☐Y ☐N ☐NA
7. SAMPLE SPLIT WITH PERMITTEE.	☐Y ☐N ☐NA
8. CHAIN-OF-CUSTODY PROCEDURES EMPLOYED.	☐Y ☐N ☐NA
9. SAMPLES COLLECTED IN ACCORDANCE WITH PERMIT.	☐Y ☐N ☐NA

Introduction

On February 8, 2012, Sarah Holcomb of the New Mexico Environment Department (NMED), Surface Water Quality Bureau (SWQB) conducted a Compliance Evaluation Inspection (CEI) at the Gallup Wastewater Treatment Plant (WWTP). The Gallup WWTP has a design flow capacity of 3.5 MGD (million gallons per day) and is classified as a major discharger under the Federal Clean Water Act, Section 402, of the National Pollutant Discharge Elimination System (NPDES) permit program. It is assigned NPDES permit number NM0020672. This permit regulates the WWTP discharge to the Rio Puerco of the West, an unclassified tributary of the Lower Colorado River in Segment 20.6.4.99 according to the *State of New Mexico Standards for Interstate and Intrastate Surface Waters, 20.6.4 NMAC.* This segment includes the designated uses of warmwater aquatic life, livestock watering, wildlife habitat and primary contact.

The NMED performs a certain number of CEIs for the U.S. Environmental Protection Agency (USEPA), Region VI, under the NPDES permit program, in accordance with the Federal Clean Water Act. USEPA uses these inspections to determine compliance with the NPDES permit program. This inspection report is based on information provided by the permittee's representatives, observations made by the NMED inspector, and records and reports kept by the permittee and/or NMED.

Upon arrival at the WWTP at 0930 hours on February 8, 2012, the inspector conducted an entrance interview with Mr. Dennis Wing, Wastewater Project Manager, and Mr. Robert Sekiya, Assistant Project Manager, where she presented credentials and explained the purpose of the inspection.

Treatment Scheme

The City of Gallup has approximately 145 miles of collection system within its jurisdiction. About 0.64 miles of the collection system are concrete, and 92.58 miles of the collection system are comprised of clay pipe. The city experiences frequent Sanitary Sewer Overflows (SSO) and the older type of pipe may contribute to the issue. The city has experienced 22 reported CSOs in 2010, 46 reported CSOs in 2011, and 5 reported CSOs in 2012, as of the time this report was finalized. There are presently six lift stations that direct the wastewater flow to the Gallup WWTP from various locations around the city. The equalization basin at the headworks of the facility has been taken out of service and now sits empty at the entrance of the plant. Recently, a lined basin west of the equalization basin was installed, for the purpose of bypass/emergency flow storage.

Also, the Gallup WWTP does accept septic hauler dumping. This is done through a locked manhole outside of the gate surrounding the plant. Septic haulers can dump into the lines between 8am and 4pm once plant staff are notified and unlock the manhole. At this time, there is no mechanism to meter the flow so that it enters the headworks slowly. Initial tests for pH are done (septage between 5.5-9.5 SU is acceptable) to somewhat characterize the hauled waste before it is dumped into the system. Facility representatives indicate that during FY13 construction will begin on a formal septage receiving station with the capability to store septage and slowly bleed it into the headworks.

The influent flow is directed through an 18 inch Parshall flume where a Drexelbrook flow sensor and recorder measure flow. Supernatant from the sludge thickener is also reintroduced to the flow at the entrance works. An automatic alarm sensor activates the automatic dialer (via a SCADA system) in case of a high water emergency at the entrance works. Influent flow is then lifted by two of three screw pumps (two online and one for backup) to two Monster separation systems mechanical bandscreens, operated in parallel. Flow can also be diverted through a manual bar screen. The flow then enters one of two grit chambers, one a traditional basin grit removal system, and one a vortex grit removal system, where coarse grit is allowed to settle out and is collected. The screenings from the automated bar screens and grit from the grit chambers are collected into waiting receptacles, which are later taken to the city landfill after a paint filter test is conducted.

Flow from the entrance works is split between three primary clarifiers. Flow from the vortex grit chamber is directed to primary clarifier #4 and flow from the basin grit chamber is directed to primary clarifiers #1 and #2. These clarifiers are 8 feet in depth. Each clarifier has a skimmer arm and a skirt to contain floating materials. At the bottom of the units, scrapers are utilized to move the sludge to a hopper in the center of the units. Waste Activated Sludge (WAS) is piped to a

primary digester and then to a secondary digester. Scum and other floating material are also pumped to the primary digester.

After the primary clarifiers, the flow is recombined and sent to the aeration basins. The first aeration basin consists of four separate chambers which employ diffused air to enhance the activated sludge process. This unit is used to further reduce BOD levels and to provide additional control of filamentous bacteria, if needed. The flow then travels to the oxidation ditch, which contains four mechanical brush aerators to supply air for the activated sludge process.

After the oxidation ditch, the flow is split between three secondary clarifiers. The secondary clarifiers are sized as follows: #1 = 75 feet in diameter with a depth of 12 feet, #2 = 65 feet in diameter with a depth of 12 feet, and #3 = 65 feet in diameter with a depth of 15 feet. The sludge from these units is also sent to the primary aerobic digester if the plant is wasting. If not wasting, the sludge is continuously sent to the aeration basins by the use of two RAS screw pumps. The flow from the clarifiers is then recombined and directed to a cloth filter building to further filter the wastewater before being sent to disinfection. These filters are operated in parallel and they are backwashed on a daily basis. The backwash water is then sent to the headworks to be recombined with the influent flow. Flow from the cloth filters then enters the chlorine contact chamber. There are two separate serpentine chlorine contact chambers, which are operated in parallel. Chlorine gas is added to the effluent at the entrance to the contact basins for disinfection and sulfur dioxide is used as a dechlorinating agent at the exit of the basins to eliminate chlorine after disinfection has taken place. Some effluent is used periodically as reuse water in the city golf course and the city sports complex for irrigation. The effluent is measured by a 18-inch Parshall flume and ultrasonic totalizer.

Solids Management

This facility has fourteen unlined sludge beds that are equipped with an underdrainage system. These units are currently not in use, except for storage in the case solids from the belt filter press cannot be land applied. The facility has a few different options for handling their solids. After passing through the digestion basins, sludge is sent to the new belt press, where it is brought up to a 17% solids level. It ranges from 14-25% solids on a regular basis. After the drying process, sludge is taken out to the adjacent 100 acre plot and incorporated into the soil for surface disposal. Sludge may also be hauled from the digestion units by injector truck to the same 100-acre plot adjacent to the plant for surface disposal. The sludge is transported from the thickening unit and injected at a depth of one foot. An incinerator is also located on site for emergency situations where the sludge cannot be incorporated into the soil. The ash from the incinerator would also be taken to the lot and incorporated into the soil.

Further Explanations

Section B - Recordkeeping and Reporting Evaluation – Overall Rating of "Marginal"

The permit requires, in Part III.C.4 under Record Contents:

Records of monitoring information shall include:

a. The date, exact place, and time of sampling or measurements;
b. The individual(s) who performed the sampling or measurements;
c. The date(s) and time(s) analyses were performed;
d. The individual(s) who performed the analyses;
e. The analytical techniques or methods used; and
f. The results of such analyses.

The permit states in Part III.E.22 (a) and (b):

7-DAY AVERAGE or WEEKLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar week, calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week. The 7-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.

(b) 30-DAY AVERAGE or MONTHLY AVERAGE, other than for fecal coliform bacteria, is the arithmetic mean of the daily values for all effluent samples collected during a calendar week, calculated as the sum of all daily discharges measured during a calendar month, divided by the number of daily discharges measured during that month. The 30-day average for fecal coliform bacteria is the geometric mean of the values for all effluent samples collected during a calendar month.

The Monitoring and Reporting Requirements Handbook (for calculation of fecal coliform/E. coli) states:

Using the Method Two Formula

$$X = \frac{\text{Sum of the Log for Sample Measurements}}{\text{\# samples}}$$

Then take the anti-log of X to obtain the GM.

In the permit, Part III.D.5, it states:

ADDITIONAL MONITORING BY THE PERMITTEE:

If the permittee monitors any pollutant more frequently than required by this permit, using test procedures under 40 CFR Part 136 or as specified in this permit, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report (DMR). Such increased monitoring frequency shall also be indicated on the DMR.

Findings for Recordkeeping and Reporting

During the review of records obtained from the facility for the months of October 2010 and May 2011, it was noted that occasionally analysis times were missing from the paperwork. Specifically, analysis times for pH samples were missing from the paperwork on May 5, 2011. It is important to document analysis times, specifically in this case to ensure that the sample is analyzed within the 15 minute holding time.

The values reported for E. coli appeared to be calculated using an arithmetic mean. The permit requires that the averages be calculated using the geometric mean. **(This is a repeat finding from the last NMED inspection.)**

The laboratory technician employed at the plant is currently undergoing proficiency testing to ensure that she is running accurate BOD samples. The facility has been taking an effluent sample, splitting it and sending half of the BOD sample to Energy Laboratories in Montana for compliance purposes, and then using the other half of the composite sample for the

lab tech to run concurrent tests. However, the extra data that the lab tech has been generating has not been factored into the DMR reporting for the facility. The permit clearly states in Part IV that any extra data generated using effluent and Part 136 methods must be reported on the DMR.

Operations and Maintenance

Section C - Operations and Maintenance Evaluation – overall rating of Marginal

The permit requires, in Part III, Section B.3.a, Proper Operation and Maintenance:

> *The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems which are installed by a permittee only when the operation is necessary to achieve compliance with the conditions of this permit.*

Findings for Operations and Maintenance:

Gallup WWTP has been struggling with the operation of this plant for quite some time. During this inspector's last visit to the facility, large amounts of foam from oil and grease within the plant was observed, and it was evident that very high amounts of solids were contained throughout the system. During the past couple of years, it appears that operational staff at the plant has worked on the solids issue, although the foam issue still needs some work.

The facility's secondary clarifiers are not in good shape. It is suspected that there is some settling occurring, which is noted in the fact that flow does not make it over half of the weir in clarifier #1. Also, the rubber at the end of the clarifier arm does not meet the side of the weir, allowing solids and foam to continue to stay in the basin. Please see Photo #2.

Foam has historically been an issue at this facility, partially due to the influx of FOG (fats, oil and grease) and partially due to occasional problems with filamentous bacteria. At the time of this inspection, plant personnel indicated that they had been having some problems with filamentous bacteria (specifically 1701). The aeration basins did contain some foam, but did not appear to be a large problem in the adjoining oxidation ditch, as has been observed in past inspections. This plant has also historically had issues with carrying a large amount of old solids within the system. During the last NMED inspection, the MLSS in the aeration basins, according to the permittee's representative, was close to 5000 mg/L with a DO reading of 1.2-1.4 mg/L. During this current inspection, the MLSS levels, according to the permittee's representatives, is closer to 3500 mg/L with a sludge age of 12-13 days, so it appears the operational staff has a better handle on the solids within the plant.

However, large amounts of foam are still observed in the secondary clarifiers. The operational staff is currently using water sprayers in an effort to dissipate the foam on the surface of the clarifiers. Please see Photo #3. The chlorine contact chamber and outfall also show a large amount of foam. (Further discussion in Section G.)

Self-Monitoring

Permit Requirements for Self-Monitoring – overall rating of Marginal.

In Standard Methods Part 9060 A (20th edition), it states:

For sampling chlorinated wastewater effluents add sufficient $Na_2S_2O_3$ to a clean sterile sample bottle to give a concentration of 100 mg/L in the sample. In a 120-mL bottle 0.1 mL of a 10% solution of $Na_2S_2O_3$ will neutralize a sample containing about 15 mg/L residual chlorine.

And,

Keep sampling bottle closed until it is to be filled. Remove stopper and cap as a unit; do not contaminate inner surface of stopper or cap and neck of bottle. Fill container without rinsing, replace stopper or cap immediately, and if used, secure hood around neck of bottle.

In the New Mexico Wastewater Laboratory Certification Study Guide, it states in Chapter 15:

Collection Procedure: Select a site that will provide a representative sample. Fecal coliform samples are always grab samples and should be drawn directly from the flow stream without using collection devices such as unsterilized dippers or buckets. For example, do not collect a BOD sample then transfer some of the sample to the fecal coliform sample bottle. Keep the sample bottle lid closed tightly until it is to be filled. Remove the cap and do not contaminate the inner surface of the bottle, neck, threads or cap. Fill the container without rinsing, being sure to leave ample air space to allow mixing. Rinsing will remove the dechlorinating agent.

In Standard Methods, 5210 B (20th edition), Part 4.b:

Dilution water storage: Source water may be stored before use as long as the prepared dilution water meets quality control criteria in the dilution water blank. Such storage may improve the quality of some source waters but may allow biological growth to cause deterioration in others. Preferably do not store prepared dilution water for more than 24h after adding nutrients, minerals, and buffer unless dilution water blanks consistently meet quality control limits. Discard stored source water if dilution water shows more than 0.2 mg/L DO depletion in 5d.

And, in Standard Methods, 5210 B (20th edition), Part 4.h:

Use a dilution water blank as a rough check on quality of unseeded dilution water and cleanliness of incubation bottles. Together with each batch of samples incubate a bottle of unseeded dilution water. Determine initial and final DO as in sections 4g and j. The DO uptake should not be more than 0.2 mg/L and preferably not more than 0.1 mg/L. Discard all dilution water having a DO uptake greater than 0.2 mg/L and either eliminate source of contamination or select an alternate dilution water source.

And, in Standard Methods, 2540 D (20th edition), Part 3.c:

…While stirring, pipet a measured volume onto the seated glass fiber filter. For homogenous samples, pipet from the approximate midpoint of container but not in vortex.

In 40 CFR Part 136.3, it states:

Parameter and Units	***Methodology***	***EPA***	***Standard Methods (18th, 19th)***	***Standard Methods (20th)***	***Standard Methods online***	***ASTM***	***USGS, AOAC, Other***
Hydrogen ion (pH), pH units	*Electrometric measurement*		*4500 H+B*	*4500 H+B*	*4500 H+B-00*	*D1293-84 (90), 99 (A or B)*	*973.41, I-1586-85*
	Automated electrode	*150.2 (Dec. 1982)*					*See footnote[21], I-2587-85[2]*
55. Residue, non-filterable (TSS), mg/L	*Gravimetric, 103-105 C° post washing of residue*		*2540 D*	*2540 D*	*2540 D-97*		*I-3765-85[2]*

The permit states in Part I.A.I:

EFFLUENT CHARACTERISTICS		*DISCHARGE LIMITATIONS*		*MONITORING REQUIREMENTS*
		Standard Units		
POLLUTANT	*STORET CODE*	*MINIMUM*	*MAXIMUM*	*MEASUREMENT FREQUENCY*
pH	*00400*	*6.6*	*9.0*	*DAILY*

Findings for Self-Monitoring:

During a discussion of the facility's lab procedures, the inspector noted that facility staff is collecting microbiological samples in a larger bottle than is needed for E. coli analysis, then transferring the sample to multiple bottles for analysis. The initial bottle used for collection does not contain a dechlorinating agent (i.e. sodium thiosulfate), but the second bottle does. According to the QA/QC procedures quoted above for bacteriological sample collection, there does not appear to be an allowance for sample transfer. The facility should collect the *E. coli* sample directly into the bottle that is being used for analysis.

During review of the BOD data obtained from Energy Laboratories, there was not enough data (i.e. benchsheets) in order to determine whether the contract lab was performing the test correctly. However, the lab did include QA/QC data as validation for the BOD tests. From that data, the inspector did note that the dilution water used in the laboratory tests was consistently above 0.2 mg/L BOD. The dilution water could be contributing to part of the BOD value of the wastewater being tested. Standard Methods clearly states that dilution water should not accrue more than 0.2 mg/L oxygen demand. It is strongly recommended that Gallup staff review this information with the lab to understand why those values are consistently exceeded.

In review of the lab data at the facility, it was noted that the methods being used to run samples for pH and TSS were incorrect. The facility is using EPA Method 150.1 to run pH samples and EPA Method 160.2 to run TSS samples. These methods were withdrawn from approval in the March 12, 2007 Federal Register. The only approved method for pH is now Standard Methods (18th, 19th, 20th, or 21st edition) 4500 H+ and the only approved method for TSS is Standard Methods (18th, 19th, 20th, or 21st edition) 2540 D. The major difference between the pH methods is that the approved pH method now is a two point calibration, bracketing the expected pH of the sample – for instance, if the expected pH is 8.0 SU, the calibration must be done with the 7.0 and 10.0 SU buffers. If the expected pH is 6.0 SU, the calibration must be done with the 4.0 and 7.0 SU buffers. Gallup lab staff are currently doing a three point calibration with a 7.0 SU buffer for a calibration check. The difference between the old and approved TSS methods are that the approved method only allows for pipetting the sample into the filtration device from the stirred sample container. The old method (the "shake and pour" method) allowed the lab tech to pour the sample directly into the filtration device after agitating the sample. The lab must change their current methods to comply with the approved methods in 40 CFR Part 136.3.

During the month of October 2010, the inspector noted that there were no blanks run with the TSS samples for the month. Blank samples are important to determine that there the lab technician is washing the filters properly. Blank samples should be run with each batch of filters prepared as a QA/QC check.

During the inspector's review of the pH data generated by the facility, it was noted that two samples were taken for pH on a given day. Those two samples were averaged to give a pH value for the day. The permit states that only the minimum and maximum values for pH are to be reported. They cannot be averaged.

Effluent/Receiving Waters

Permit Requirements for Effluent/Receiving Waters – overall rating of Marginal.

The permit states in Part I.A:

There shall be no discharge of floating solids or visible foam in other than trace amounts.

Findings for Effluent/Receiving Waters:

On the day of the inspection, foam was observed throughout the facility, but was extremely visible in the chlorine contact chamber, as well as the outfall and receiving waters. Please see photos # 4 and 5. The foam was somewhat persistent as it traveled about half a mile downstream before disappearing. This is a repeat finding from the last NMED inspection.

Discharge Monitoring Report Calculation Check

The DMR calculation check was conducted for Biochemical Oxygen Demand (BOD) and E. coli for the months of October 2010 and May 2011.

Concentration values are in mg/L. Loading values are in pounds per day. The permit requires a six-hour composite sample twice per week for BOD (according to the now expired permit), and a grab sample twice per week for E. coli.

BOD October 2010

DATE	CONCENTRATION	FLOW, MGD	LOADING
10-4-10	<4 mg/L	1.86	62.049
10-5-10	16 mg/L	1.61	214.838
10-12-10	4.5 mg/L	1.83	68.679
10-13-10	4.1 mg/L	2.25	76.937
10-19-10	4.2 mg/L	2.26	79.163
10-20-10	9.9 mg/L	2.32	191.553
10-26-10	3.5 mg/L	2.14	62.466
10-27-10	ND mg/L	2.25	<56.295
TOTAL:	49.2 mg/L		811.98

Loading:
July's 30 day average = 811.98/8 days = 101.498 lbs/day (reported 104.04 on DMR)

Concentration:
July's 30 day average = 49.2 mg/L / 8 = 6.15 mg/L (reported 5.7 on DMR)
July's 7 day average = 16 + 4 / 2 = 10 mg/L (reported 9.5 on DMR)

E. Coli October 2010

DATE	RESULT
10-1-10	>2419.6 org/100 mls
10-4-10	24.54
10-5-10	5.299
10-13-10	27.567
10-14-10	696.43
10-19-10	117.81
10-20-10	92.67
10-25-10	169.08
10-27-10	10.11

E. coli 30 day average:
Log(2419.6) + Log(24.54) + Log(5.299) + Log(27.567) + Log(696.43) + Log(117.81) + Log(92.67) + Log(169.08) + Log(10.11) = 17.05204374 / 9 samples = 1.894671527

Antilog(1.894671527) = 78.464 org/100 mls (reported >670 on DMR)

E. coli 7 day average:
July's daily max: 2419.6 org/100 mls (reported >4839.2 on DMR)

BOD May 2011

DATE	CONCENTRATION	FLOW, MGD	LOADING
5-3-11	10 mg/L	1.46	121.764
5-4-11	10 mg/L	1.44	120.096
5-10-11	11 mg/L	1.48	135.775
5-12-11	9 mg/L	1.95	146.367
*5-12-11	6.6 mg/L	1.95	107.336
5-17-11	6 mg/L	2.07	103.583
5-18-11	5 mg/L	2.19	91.323
5-24-11	4 mg/L	1.4	46.704
5-25-11	4 mg/L	2.24	74.726
*Sample taken on 5-26-11 would not have been reportable – too much depletion in BOD bottles.			
5-31-11	<3 mg/L	2.01	50.290
* = Sample was taken for competency but was not reported.			
TOTAL:	68.6 mg/L		997.964

Loading:
December's 30 day average = 997.964 / 10 = 99.796 lbs/day (reported 110.77 on DMR)

Concentration:
December's 30 day average = 68.6 mg/L / 10 = 6.86 mg/L (reported 6.89 on DMR)
December's 7 day average = 11 + 9 / 2 = 10 mg/L (reported 10 on DMR)

E. Coli December 2008

DATE	RESULT
5-3-11	<1 (1) org/100 mls
5-4-11	<1 (1)
5-10-11	1075.4 (permittee had 1078 with arithmetic mean)
5-12-11	2.02 (permittee had 2.4 with arithmetic mean)
5-17-11	<1 (1)
5-18-11	8.19 (permittee had 8.4 with arithmetic mean)
5-24-11	2.0 (permittee had 2.3 with arithmetic mean)
5-25-11	1.26 (permittee had 1.3 with arithmetic mean)
5-31-11	5.85 (permittee had 5.9 with arithmetic mean)

E. coli 30 day average:
Log(1) + Log(1) + Log(1075.4) + Log(2.02) + Log(1) + Log(8.19) + Log(2.0) + Log(1.26) + Log(5.85) = 5.41876171 / 9 samples = 0.6050846345

Antilog 0.6050846345 = 4.00 org/100 mls (reported 122.37 on DMR)

E. coli 7 day average:
December's daily max: log 1075.4 + log 2.02 = 3.336921402 / 2 = 1.668460701
Antilog 1.668460701 = 46.608 (reported 1078 on DMR)

NMED/SWQB

Official Photograph Log

Photo # 1

Photographer: Sarah Holcomb	Date: 2-8-2011	Time: 1052 hours
City/County: Gallup/McKinley County		
Location: Gallup WWTP		
Subject: Foam in the aeration basin.		

NMED/SWQB

Official Photograph Log

Photo # 2

Photographer: Sarah Holcomb	Date: 2-8-2011	Time: 1101 hours
City/County: Gallup/McKinley County		
Location: Gallup WWTP		
Subject: Foam in secondary clarifier #3.		

NMED/SWQB

Official Photograph Log

Photo # 3

Photographer: Sarah Holcomb	Date: 2-8-2011	Time: 1113 hours
City/County: Gallup/McKinley County		
Location: Gallup WWTP		
Subject: Foam in secondary clarifier #1, and almost no flow coming over the weirs. This is potentially due to a settling issue where clarifiers #1 and #2 are located.		

NMED/SWQB

Official Photograph Log

Photo # 4

Photographer: Sarah Holcomb	Date: 2-8-2011	Time: 1131 hours
City/County: Gallup/McKinley County		
Location: Gallup WWTP		
Subject: Foam discharged out of the outfall into the Rio Puerco of the West.		

NMED/SWQB

Official Photograph Log

Photo # 5

Photographer: Sarah Holcomb	Date: 2-8-2011	Time: 1133 hours
City/County: Gallup/McKinley County		
Location: Gallup WWTP		
Subject: Rio Puerco downstream of the outfall. Note that the foam is somewhat persistent.		